

Sunn hemp - a summer cover crop for biomass and N fixing potential.

Why Does it matter?

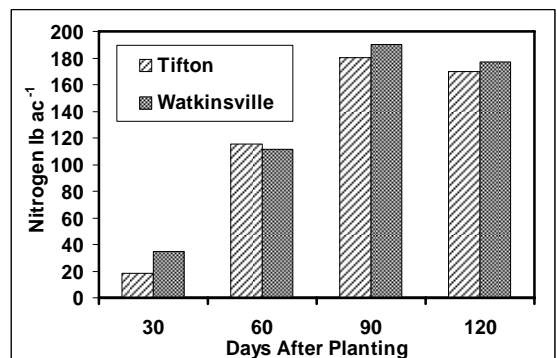
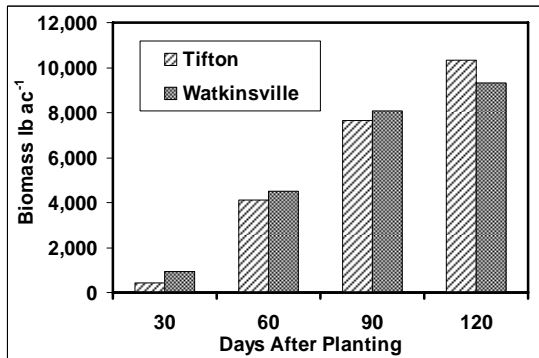
Legumes have been used for centuries to provide nitrogen (N) for crop production and reduce fertilizer costs. Sunn hemp (*Crotalaria juncea* L.), is a tropical legume that can both produce a large amount of biomass (important for improving soil organic matter) and fix large amounts of N, thus providing two benefits from one cover crop. In addition to providing green manure and N benefits, sunn hemp can be grazed and can suppress populations of plant parasitic nematodes including root-knot, soybean cyst and reniform. Information on planting and harvest date effects on sunn hemp biomass and N production could help producers determine when to use sunn hemp in various crop production systems in the Southeast.



What was done?

Agricultural Research Service scientists from Watkinsville and Auburn, AL, along with scientists from the University of Georgia and Virginia State University evaluated how to best manage sunn hemp for biomass and N production in the South. Sunn hemp was planted near the 15th of April, -May, June, and July and harvested after 30, 60, 90, and 120 days at Watkinsville and Tifton Georgia. Sunn hemp was planted at 20 lb per acre on 30 inch rows in Watkinsville and 36 inch rows in Tifton with a four row no-till planter. Plots were irrigated periodically to reduce water stress.

What was found?



Response of sunn hemp was slightly different between the two locations but good biomass production was produced in 60 to 90 days at both locations. Similar response was seen for the N accumulation of sunn hemp with the maximum N content measured at 90 days after planting. At Tifton, maximum biomass in 90 days was produced from April and May plantings, while at Watkinsville maximum biomass at 90 days was produced from May and June plantings. The difference between the two locations was most likely related to warmer temperatures in Tifton compared to Watkinsville earlier in the growing season. Averaged across locations and planting dates, sunn hemp produced

2.1, 3.9, and 4.9 tons/acre biomass and 110 to 180 lb nitrogen/acre after 60, 90, and 120 days, respectively. About half of the N fixed by sunn hemp would be expected to be available to a subsequent crop planted in the fall or early spring based on data from a study in Alabama. We used our data to develop equations for predicting the amount of biomass and N a producer can expect from sunn hemp when planted at different times during the summer. The equations worked well for data from studies in Alabama, Florida, and Virginia

What is the impact?

US farmers use nearly 13 million tons of N annually and the price has increased approximately 35% from 2003 to 2006. Further increases of 5 to 15% are expected in the future due to increasing energy costs. Sunn hemp used as a cover crop/green manure could help reduce N fertilizer use and costs on the more than 4 million acres of vegetables and 7 million acres of corn grown in the South. In addition to the N value of sunn hemp, the large amount of biomass produced would help improve soil organic matter which can help increase N use efficiency. It appears that sunn hemp can fit well into most short-rotation vegetable and corn production systems in the Southeast.



Research

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